



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,600	12/22/2003	Kyu-Jun Kim	5458.3001P	7558
20792	7590	05/02/2006	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			ZIMMER, MARC S	
PO BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	

1712

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,600

Applicant(s)

KIM ET AL.

Examiner

Marc S. Zimmer

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 41-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-12,17-21,41-46,48,49,53,54,56-61,65 and 66 is/are rejected.
- 7) ☒ Claim(s) 2-5,13-16,47.5,48.5,49.5,50.5,51.5,52,55 and 62-64 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05/24/04,08/19/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Applicant's election without traverse of Group I, Claims 1-21 and 41-66 in the reply filed on March 6, 2006 is acknowledged. Claims 22-40 and 67-70 have been cancelled.

Claim Objections

Claim 2-7, 44, 47, 49-52, 61-64 are objected to because it is imprecise to say that the polymer "comprises" these materials. Rather, it is derived from these materials. Correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Grandhee et al., U.S. Patent # 5,569,715. They describe an "emulsion" polymer featuring a hydrophobic core and a hydrophilic shell (column 2, lines 39-42). Suitable hydrophobic compounds are those outlined in column 3, lines 17-25 including polyesters, polyurethanes and alkyds. A description of suitable monomers for preparing a polyester core is provided in column 3, lines 26-48. Relevant to the present discussion, there are several polyhydric monomers mentioned that contain a secondary hydroxyl moiety including propylene glycol, glycerol, and sorbitol. Secondary hydroxyl group-functionalized polyol starting materials are also mentioned in connection with the preparation of alkyds (column 5, lines 1-5). The description of potential monomers for the hydrophilic shell is provided in the paragraph bridging columns 7 and 8.

Claims 1-2 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishi et al., U.S. Patent # 5,747,558. Nishi discloses an aqueous composition comprising a water dispersible polymer adhering to the general description set out in column 2, lines 30-39. Suitable monomers from which the "ethylenic" polymer is prepared are outlined in columns 3 through 5. The polyester component of the copolymer is prepared using the polyols mentioned in column 5, line 45 through column 6, line 18 and the polycarboxylic acids/anhydrides recited in column 6, lines 19-27. Notably, among the polyols deemed suitable in preparing the polyester are propylene glycol and hydrogenated bisphenol A. Further, relevant to claim 2, it is contemplated in column 6, lines 43-47 that a monoepoxy compound may be integrated into the polyester to enhance flexibility.

In the paragraph bridging columns 6 and 7, it is emphasized that the polyester is more hydrophobic than is the ethylenic/acrylic polymer. In view of this, it is supposed that the copolymer takes the form of a core-shell polymer in an aqueous environment wherein the hydrophilic acrylic polymer represents the shell and the polyester the core.

Claims 1, 6-12, 17, 19, 41-45, 53-54, 59, and 66 are rejected under 35 U.S.C. 102(b) as anticipated by Montesissa et al., U.S. Patent # 3,894,978.

The reference teaches a water dispersible polymer composition comprising an alkyd resin core modified with a shell polymer of copolymerized (meth)acrylic acid and unsaturated fatty acids. Preferred polyols for use in preparing the alkyd resin include polyols containing secondary hydroxyl groups. See col. 4, lines 26-36 and Example 1. Given that the copolymer features an alkyd fraction and acrylic/unsaturated fatty acid polymer fraction,

and a similar synthetic approach are described, see under the heading "Preparation of a water dispersible resin" in Example 4, a core-shell structure in water is inherently realized.

Since the compound containing secondary hydroxyl groups is the only polyol taught in Example 1, the mole percent of core polyester linkages would necessarily be at least 5 mole percent. Polyols containing secondary hydroxyl groups can be copolymerized with monomers that include dicarboxylic acids and fatty acids. See col. 4, line 58 through col. 5, line 35 and col. 5, line 53 through col. 6, line 21 .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grandhee et al., U.S. Patent # 5,569,715. Although acrylic monomers are recited among those suited for use in constructing the polymer shell. There is no express teaching of the preparation of a core-shell polymer wherein the core is derived from secondary alcohols and the shell from acrylic monomers. Nevertheless, the Examiner is of the opinion that this embodiment is at least broadly suggested and, hence, is obvious.

As for claim 17, it shall first be noted that Applicant has placed no criticality on this lower limit. Additionally, it is the Examiner's position that the skilled artisan will appreciate in reading Grandhee's disclosure that the polyester may be derived from a single polyol, in which case the content of ester linkages derived from a secondary alcohol is 50% where, for instance,

Art Unit: 1712

propylene glycol is employed as the lone polyol. Other polyesters reasonably suggested by the reference and derived from more than one polyol but still having at least 5% of all ester linkages derived from secondary alcohols are also readily envisaged.

Claims 17, 19, 20-21, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al., U.S. Patent # 5,747,558.

As before, Nishi doesn't expressly require that the polyester be comprised of at least 5% ester linkages derived from a secondary alcohol but, again, where one of the aforementioned polyols is employed as the sole polyol, this aspect is inherently satisfied.

Nishi describes colored compositions containing a pigment and, thus, claims 20-21 and 65 are rejected.

Claims 20-21, 46, 56-58, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montesissa et al., U.S. Patent # 3,894,978.

It is noted that the copolymers described therein are formulated into paints. Therefore, the incorporation of pigments is obvious. Further, the Examiner takes notice of the fact that the incorporation of small amounts of VOCs into latex paints to achieve the proper consistency and drying characteristics is practiced ubiquitously in the paint industry and, hence, this aspect is obvious. Finally, crosslinking agents are required for a paint to have good film-forming properties. Among those most prominently used are polyisocyanates and melamine resin. (See, for example, column 8, line 49 through column 9, line 8 of Nishi.)

Claims 48 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montesissa et al., U.S. Patent # 3,894,978 in view of Buter et al., U.S. Patent # 5,721,294.

Buter discloses the use of unsaturated comonomers such as styrene and (meth)acrylates in preparing (meth)acrylic acid modified alkyl resin. See col. 4, lines 40-65 and examples. As evidenced by Buter, use of monomers such as styrene and (meth)acrylate is conventional in preparing (meth)acrylic acid modified alkyl resin, and therefore, it would have been obvious to include monomers such as styrene and (meth)acrylate in the shell polymer of copolymerized (meth)acrylic acid and unsaturated fatty acids of Montesissa.

Claims 49 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montesissa et al., U.S. Patent # 3,894,978 in view of Nishi et al., U.S. Patent # 5,747,558. Nishi motivates the skilled artisan to introduce a monoepoxy compound into the alkyd-forming mixture to increase its flexibility.

Allowable Subject Matter

Claims 3-5,13-16,47,50-52,55 and 62-64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Grandhee does, in fact, contemplate core materials that are polyurethanes (and, hence are derived from isocyanate compounds). However, the reference does not fairly suggest the use of polyurethanes derived from polyester polyols wherein the polyester polyols are, in turn, derived from secondary alcohols.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

Art Unit: 1712

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 27, 2006


MARC S. ZIMMER
PRIMARY EXAMINER